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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,750	12/20/2000	Hiroshi Takanashi	2000_1749	4981

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EXAMINER

LEE, SIN J

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 06/19/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/739,750

Applicant(s)

TAKANASHI ET AL.

Examiner

Sin J Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/262,077.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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### DETAILED ACTION

1. Applicants canceled claim 2.
2. In view of the amendment of April 3, 2002, the previously made rejections on claims 1, 4, and 5 over Cohen et al'415 are hereby withdrawn. Cohen's ortho/para-toluene sulfonamide is used in 6 wt% ( $420/(18919-10728-1192) \times 100\% = 6 \text{ wt\%}$  - see Cohen's Table 1) or in 5.275 wt% ( $(5.275/100) \times 100\% = 5.275 \text{ wt\%}$  - see Cohen's Example 3) based on the total weight of their coating composition, *excluding the solvent*.
3. In view of the amendment of April 3, 2002, the previously made rejections on claims 1, 2, 4, and 5 over Ichikawa et al'282 in view of Kunita et al'140 are hereby withdrawn. Ichikawa's p-toluene sulfonamide is used in 3.6wt% ( $4/(60 + 1 + 4 + 0.2 + 0.5 + 0.5 + 0.05 + 4 + 40) \times 100\% = 3.6 \text{ wt\%}$  (see Ichikawa's Examples 1-4, Tables 1-3)) based on the total weight of the composition, *excluding any solvent*.
4. In view of the amendment of March 7, 2002 and April 3, 2002, the previously made 102(b) rejections on claims 1, 4, and 5 over Pine'640 are hereby withdrawn (but see Paragraphs 9 and 10 below for 103(a) rejections on claims 1 and 3-5 over the prior art).
5. The amendment filed on March 7, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: In present specification, applicants amended

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[0056]-[0058], [0060], [0061], and Table I (pg.23) so as to change original Examples 1-17 to Comparative Examples 1 to 13 and Examples 1-4 and to change original Examples 18-34 to Comparative Examples 14 to 26 and Examples 5-8. However, it is clear from the original disclosure that applicants originally intended the original Examples 1-12 and 18-29 (in which the amount of component (E) ranges from 0 to 3.50 wt%) to be their invention and the original Examples 13-17 and 30-34 to be the comparative examples (in which the amount of component (E) ranges from 4 to 18.0 wt%). Therefore, applicants' amendment of March 7, 2002 consists of new matter. ✓

Applicant is required to cancel the new matter in the reply to this Office Action.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1 and 3-5 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 1 (as amended in April 3, 2002), applicants are claiming the amount of present component (E) to be 1.0-2.0 wt% based on the weight of the *solid* components of the photosensitive resin composition. There is no support for this limitation in the original disclosure. *In fact*, in present specification, while applicants recite (see pg.9, [0025], pg.11, [0027], pg.12, [0029], pg.13, [0031]) the amount of present component (A)-(D) in "wt% of the *total solid components* of the photosensitive resin composition" of their invention, they recite (see pg.13, [0032]) the amount of present component (E) simply in "wt% based on the weight of the photosensitive composition" (no where in the specification it is mentioned that the wt% amount of present component (E) is based on the total solid components of the photosensitive resin composition). Also, although applicants argue that when a composition ~~is~~ exclusive of solvents is mentioned, a simple term "composition" is used, [0056] of pg.21 of present specification indicates that the photosensitive resin *composition* does not exclude solvent

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because applicants describe in [0056] that in preparation of water soluble photosensitive resin "compositions" 1-17, component (A) is first dissolved in water (which is clearly a solvent).

9. In the previous Office action, claims 2 and 3 were not rejected over Pine'640 because it was the Examiner's position at the time that applicants demonstrated the unexpected superior results of using p-toluene sulfonamide in the range of 0.5-2.0 wt%. However, the Examiner's such conclusion was based on the assumption that the amount of present component (E) shown in Table I was based on the total weight of the composition, *not excluding the solvent*. Since applicants now amended their claim so as to define the amount of component (E) in wt% based on the weight of the solid components of the photosensitive composition (thereby excluding the solvent), and since the original disclosure never stated that the amount of (E) shown in Table I is based on the total weights of the solid components of the photosensitive composition, it is the Examiner's position that the results shown in Table I have *not* demonstrated the unexpected superior results of using p-toluene sulfonamide in the range of 0.5-2.0 wt% (or 1.0-2.0 wt%) based on the total weight of the *solid components* of the photosensitive composition. Thus, all of the present claims will be rejected over Pine'640 in this Office action (see below).

10. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pine (4,361,640).

In Example 2, Sample A, Pine teaches (col.1, lines 58-68, col.2, lines 1-19) (I) a binder system (*present component (A)*) which is the reaction product of terpolymer of methyl methacrylate/n-butyl acrylate/methacrylic acid, amine-terminated polyamide, and poly[vinyl

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pyrrolidone/vinyl acetate], (ii) an ethylenically unsaturated monomeric compound (*present component (B)*) which is tetraethyleneglycol diacrylate, (iii) free radical generating, addition polymerization initiators (*present component (C)*) which are 2,2-dimethoxy-2-phenyl acetophenone and 2-ethylanthraquinone, and (iv) a thermal polymerization inhibitor (*present component (D)*) which is 1,4,4-trimethyl-2,5-diazobicyclo-[3,2,2]-non-2-ene-N,N'-dioxide.

Pine also teaches (col.4, lines 20-27) that a plasticizer can be present in his composition in the amount of 0 to 18 wt% (it is the Examiner's position that this wt% is based on the total weight of the composition *excluding the solvent* since Pine does not use any solvent in preparing his photopolymer composition), and as one of only six examples for the plasticizer, Pine includes mixed o,p-toluene sulfonamide. Since Pine clearly teaches that a plasticizer such as o,p-toluene sulfonamide can be present in his photopolymer composition, it is the Examiner's position that it would have been obvious to one of ordinary skill in the art to include 0-18wt% of o,p-toluene sulfonamide in Pine's Sample A composition with a reasonable expectation of achieving a photopolymerizable composition which not only has good quality but has environmental advantages at reduced mill costs over prior art compositions as taught by Pine. Since the prior art's range of 0-18 wt% (based on the solid components) overlaps with present ranges of 1.0-2.0 wt% (based on the solid components) and 1.0-1.5 wt% (based on the solid components), Pine's teaching would have made present ranges of claims 1 and 3 *prima facie* obvious. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a *prima facie* case of obviousness would exist which may be overcome by a showing of unexpected results, In

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re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, Pine's teaching would render obvious present inventions of claims 1, 3, and 4.

With respect to present claim 5, since Pine's photopolymerizable composition is aqueous developable, it is the Examiner's position that Pine's binder system is impliedly water-soluble. Therefore, Pine would render obvious present invention of claim 5.

11. Claims 1, 3, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (JP 2-84653, its English abstract, Chemical Abstract AN 1990:506458, and partial English translation for the Japanese document) in view of Kunita et al (5,703,140).

Partial English translation for the Japanese document (claims 1-4) is available at this time. As soon as the Examiner obtains the entire English translation of the Japanese document (around June 20, 2002), it will be sent to applicants.

Tanaka teaches (see partial English translation of claim 1 of the Japanese document) a photosensitive composition containing 100 parts of a 40/60-80/20 mixture of a film forming polymer (present component (A)) and a vinyl compound (Present component (B)), 0.5-10 parts of an aromatic sulfonamide of the formula (I) (e.g., p-toluene sulfonamide as shown in the abstract - present component (E)), 0.2-10 parts of a polyether glycol, and 0.2-10 parts of an organic halogen-containing compound, and 0.5-10 parts of a sensitizer or its system creating free radicals under active light irradiation (present component (C)). 0.5-10 parts of aromatic sulfonamide (such as p-toluene sulfonamide) is converted to 0.49 wt% to 7.14 wt% based on the total weight of the composition (without any solvent involved). Since this range overlaps with present ranges



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of 1.0-2.0 wt% (based on the solid components) and 1.0-1.5 wt% (based on the solid components), the prior art's range would have made the present ranges of component (E) of claims 1 and 3 *prima facie* obvious. See In re Wertheim, supra.

Although Tanaka (in the abstract or in the partially translated portion of the Japanese document) does not explicitly disclose the thermal polymerization inhibitor, it is well known in the art that addition of a slight amount of a thermal polymerization inhibitor into a photopolymerizable composition prevents unnecessary thermal polymerization of the polymerizable ethylenically unsaturated compound during the production or storage of the photosensitive composition. For example, see Kunita et al, col.86, lines 61-67, col.87, lines 1-8 which teaches the addition of the thermal polymerization inhibitor into a photopolymerizable composition in the amount of 0.01-5wt% based on the weight of the entire composition. Therefore, it would have been obvious to one of ordinary skill in the art to add a slight amount of the thermal polymerization inhibitor into Tanaka's photosensitive composition in order to prevent unnecessary thermal polymerization of the polymerizable ethylenically unsaturated compound during the production or storage of the photosensitive composition as taught by Kunita. Therefore, Tanaka in view of Kunita would render obvious present inventions of claims 1, 3, and 4.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (JP 2-84653, its English abstract, Chemical Abstract AN 1990:506458, and partial English translation

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of the Japanese document) in view of Kunita et al (5,703,140) as applied to claim 1 above, and further in view of Ichikawa et al (5,744,282).

Tanaka and Kunita with respect to present claim 1 is discussed above in Paragraph 11. Tanaka uses (in his Example 3) methyl methacrylate/methacrylic acid/2-ethylhexyl acrylate copolymer as his film forming polymer. Ichikawa, which also teaches a photosensitive composition comprising a polymeric binder, a polymerizable ethylenically unsaturated compound, a photoinitiator, and p-toluene sulfonamide, teaches (see col.4, lines 8-17) the equivalence of Tanaka's copolymer and homopolymer of methacrylic acid. Since the homopolymer of methacrylic acid and methyl methacrylate/methacrylic acid/2-ethylhexyl acrylate copolymer were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to replace methyl methacrylate/methacrylic acid/2-ethylhexyl acrylate copolymer with the homopolymer of methacrylic acid (which is water-soluble) in Tanaka's photosensitive composition with a reasonable expectation of achieving a photosensitive composition having improved adhesiveness and photosensitivity. Therefore, Tanaka in view of Kunita and Ichikawa would render obvious the present invention of claim 5.

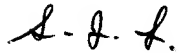
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is (703) 305-0504. The examiner can normally be reached on Monday-Friday from 8:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Janet Baxter, can be reached on (703) 308-2303. The fax phone number for the

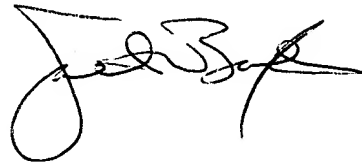
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organization where this application or proceeding is assigned is (703) 872-9311 for after final responses or (703) 872-9310 for before final responses.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0661.



S. Lee  
June 13, 2002



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